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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/024,658	12/17/2001	Kwang-Leong Choy	674505.2003	3227

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EXAMINER

PARKER, FREDERICK JOHN

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 05/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

AS

Office Action Summary	Application No. 10/024,658	Applicant(s) CHOY ET AL.	
	Examiner Frederick J. Parker	Art Unit 1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 31-33, 36 is/are rejected.
- 7) ☒ Claim(s) 4-30, 34, 35 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/091,456.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

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DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority under 35

U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 09/091456, filed on 6/15/98. *Specification*

2. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

The content of the abstract is insufficient.

3. The disclosure is objected to because of the following informalities: (1) please update the first sentence to Related Applications to include the patent number for 09/091456. Appropriate correction is required.

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Drawings

4. The drawing changes in paper of 12/17/01 are acceptable.

Claim Objections

5. Claims 4-30,34-35 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot refer back to another multiple dependant claims. See MPEP § 608.01(n). Accordingly, the claims 4-30,34,35 **not been further treated on the merits.**

Double Patenting

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claims 1-30 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-30 of U.S. Patent No. 6331330. Although the conflicting claims are not identical, they are not patentably distinct from each other because while the instant application does not cite "pressure feeding" the solution or "providing a corona spray of droplets" as in US'330, application of a liquid by spraying under pressure and formation of corona spray in an electrostatic spray method are obvious variations within the purview of the skilled artisan.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claim 36 is rejected under 35 U.S.C. 102(b) as being anticipated by Spiller US 3754975.

Spiller teaches a method of coatings a substrate by supplying a coating solution comprising a solvent and decomposable metal salt which is sprayed (Applicants' step 1a) onto the heated substrate to decompose the solution to form a coating, the heated substrate providing an increase in temperature from the spray outlet towards the heated substrate (Applicants step 1c). The sprayed particles adhere to the substrate by utilization of an electrostatic field between particles and substrate (Applicants step 1b).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

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2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

1. Claims 1-3,31,33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al US 5,344,676 in view of Clark et al US 4,921,731 or Chivukala et al US 6066581.

Kim et al teaches a method for applying nanodrops to a substrate to form a coating. A precursor material 9 comprises a decomposable base material. The sprayed liquid droplets are electrostatically charged with a negative or positive polarity. The entire apparatus is contained within chamber 22 per claim 33. The target area is heated by heater 34 to promote reactions and specific heating temperatures would have been dependant upon the decomposition temperature of any precursor in order to form the desired coating material. There would have been an increase in temperature from the spray outlet towards the heated substrate. The charged particles would have been attracted to any substrate possessing a charge unlike that of the particles, as would have been apparent to one skilled in the art because that is the principle of electrostatic coating. Coating solution is transported from supply 2 to the spray outlet using capillary tube device 10 which is the same as, or functionally equivalent to, the syringe pump of claim 32 because of the outcome of constantly spraying coating solution through a capillary tube. While such sol gel-type precursor compositions are exemplified, the use of such compositions with a pH-modifying catalyst are not cited.

Clark et al teaches a method for forming sol coatings onto substrates in which a precursor solution is formed using organometallic compounds such as metal alkoxides, ethoxides, methoxides, etc; orthosilicates (encompassing or reasonably suggesting polymeric organosiloxanes); and mixtures thereof in an aqueous or water-organic solvent mixture, in which

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the pH is necessarily adjusted by use of a suitable acid, inorganic salt or base (col. 7, lines 6-15; col. 7, lines 21-41). The use of such pH agents causes hydrolysis and peptization to promote stability of the sol particles formed. Alternatively col. 2, 49-59 of Chivukula et al teaches hydrolysis and polymerization is controlled by pH/ presence of acid or base catalysts in similar precursor systems. Hence, one of ordinary skill would have recognized the importance of adjusting pH using the pH agents of Clark et al or Chivukula et al a sol-based coating process, including that of Kim et al, to derive the recognized benefits of hydrolysis and stabilization of the sol particles formed.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the electrostatic spray process of Kim et al by incorporating the teachings regarding pH agents of Clark et al or Chivukula et al to attain the recognized benefits of hydrolysis and peptization to promote stability of the sol particles formed in the electrostatic spray coating process.

2. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al US 5,344,676 in view of Clark et al or Chivukula et al and further in view of Hirose US 5,298,277.

Kim et al, Chivukula et al, and Clark et al cited for the same reasons discussed above. Rotating and/or translating outlet and substrate is not disclosed.

Hirose teaches an electrostatic spray coating process in which a spray gun is moved relative to a moving substrate, which permits end portions of the substrate to be coating resulting in greater coating uniformity, resulting in improved coating quality. The teachings would have reasonably

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suggested the use of the concept in any electrostatic spraying method, such as that of Kim et al, to derive the recognized benefits of greater coating uniformity and quality.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process of Kim et al in view of Clark et al or Chivukula et al by incorporating the teachings of Hirose regarding relative movement of sprayer and substrate to attain the recognized benefits of greater coating uniformity and quality.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frederick J. Parker whose telephone number is 571/ 272-1426. The examiner can normally be reached on Mon-Thur. 6:15am -3:45pm, and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on 571/272-1415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Frederick J. Parker
Primary Examiner
Art Unit 1762

fjp